

ABSTRACT

To enable measuring optical characteristics of a device under test by overcoming a limit of detection sensitivity caused by detecting light as “wave”. Of an entangled photon pair generated by entangled photon pair generating means 20, signal light transmits through a device under test (DUT) 10, and idler light transmits through a variable delay line 30. The signal light after transmitting through the device under test (DUT) 10, and the idler light after transmitting through the variable delay line 30 are supplied for a semi-transparent mirror 40 to generate quantum interference. Then, if the timing when photon of the first multiplexed light is detected by a first photon detector 50a, and the timing when photon of the second multiplexed light is detected by a second photon detector 50b match, a multiplier 62 supplies a pulse, and a counter 64 counts the pulse. Based on the count, characteristic measuring means 70 obtains match detection probability, thereby measuring optical parameters of the device under test. Since the measurement uses the quantum interference, it is possible to measure the optical characteristics of the device under test at a high accuracy, and in a wide dynamic range.